WT

SNOW SURVEYS AND IRRIGATION WATER FORECASTS

FOR OREGON

AS OF

APRIL 1, 1944

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Issued April 8, 1944

by

Oregon Office, P. O. Box 1149, Medford, Oregon
Division of Irrigation, Soil Conservation Service
United States Department of Agriculture
and

Oregon Agricultural Experiment Station, Medford Branch
cooperating

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Data included in this report are provided by the agencies listed above, in cooperation with the Oregon State Engineer, U. S. Forest Service, National Park Service and other Federal, State and local organizations. 1/

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FINAL WATER SUPPLY OUTLOOK
as of April 1, 1944

> Oregon's 1944 water supply prospect has shown but slight improvement since February first. 70 percent of irrigated lands have in sight "good" to "fair" water supplies. These are lands chiefly served from reservoirs containing substantial "hold-over" from 1943. Very few areas depending for irrigation upon unregulated stream flow have in sight other than "deficient" to "fair" water supplies.

Mountain snow cover enters the melting season considerably below average on nearly all snow courses. If precipitation during the run-off season is normal or less, stream flow below normal during the irrigation season is certain for most localities.

Only a few watershed soils in Eastern Oregon remain hard frozen beneath the snow. Where it exists, this condition is likely to favor greater reservoir storage from rapid run-off, but is considered unfavorable to sustained run-off where storage facilities are lacking. Mountain snow this season is poorly consolidated. Effect of this condition upon rate of snow-melt and run-off is not certain.

Total water stored in all reservoirs is about 12 percent less than of similar date in 1943, 1942 and 1940. It is 8 percent less than 1941. More reservoirs are better than half full than in 1942 or 1941, but the number is the same as in 1940, and less than in 1943.

Precipitation accumulated in Oregon valleys since October 1 is considerably below normal, and is the least for this 6-months' period of any year since initiation of Oregon snow survey reports in 1936.

Fallow land soil moisture is generally good, but crop land soil moisture is below normal and early irrigation is under way or needed in some localities.

Stream flow forecasts are summarized on pages 2 and 3 of this report and forecast committee reports are detailed beginning on page 19.

Explanation of Tabulation Below and of Water Forecast Map Preceding Page 10

Tabulated below are figures indicating for what percentage of Oregon's irrigated acreage (1,046,597 acres total by 16th U. S. Census, 1940) the 1944 irrigation water supply is expected to be "good" or otherwise. Terms describing forecasted water supply are based on local definition. The descriptive words indicate whether or not the prospective water supply to the given percentages of the total is expected to be, by local standards, deficient, fair (generally adequate but somewhat short late in the season), or good (plenty) for crop production on the usual acreage. These differences are shown in color on the map preceding page 10.

Prospective 1944 Irrig. Supply:	Deficient*	Fair	Good	No Forecast	Total
Percent of Total Irrigated Area:	25	22	48	5	100

* Better than 1934 in most localities.

The following summarized run-off forecasts are based on present mountain snow cover and on the assumption that precipitation and temperature during the run-off season will be approximately normal. Appreciable deviations from normal of temperature and/or precipitation, especially during April or May, will correspondingly modify these forecasts.

		Apr.-Sept.,incl., Stream Flow Expectancy as of Apr. 1, 1944		
Area	Stream	Acre Feet	As % of Avg. 1929-43	As % of Last Year
Northcentral	White River below Tygh Valley at Sta. 3613	102,000	75	42
Umatilla-Walla Walla	Butter Cr. nr. Pine City (2229)	2,500	39	17
	McKay Creek above McKay Reservoir (2213)	15,000	63	41
	S.Fk. Walla Walla River near Milton (214)	52,000	80 a	63
	Umatilla R. nr. Gibbon (2236)	58,000	75 b	50
	Umatilla R. at Pendleton (223)	130,000	88	56
Northeastern	Bear Creek near Wallowa (1815)	42,000	71	43
	Grande Ronde River near LaGrande (1816)	110,000	73	45
	Hurricane Cr. near Joseph (1814)	25,000	65	45
	Imnaha River at Imnaha (172)	100,000	40	28
	Lostine R. near Lostine (1810)	75,000	70	49
	Powder River at Salisbury (152)	21,000	42	24
	Wallowa R., E. Fk. (1822+1823)	6,300	67	50
	Catherine Creek nr. Union (185)	31,000	49	41

a - 1932-43 b - 1933-43

(Continued)

Area	Stream	Apr.-Sept., incl., Stream Flow Expectancy as of Apr. 1, 1944		
		Acre Feet	As % of Avg. 1929-43	As % of Last Year
Eastern	Malheur River, Middle Fork, near Drewsey (1320)	30,000	52	21
	Malheur River, North Fork, at Beulah (139)	25,000	54	24
	Owyhee R.abv.Owyhee Res. (1232)	240,000	61	49
	Strawberry Creek near Prairie City (2434)	4,300	61 c	38
Harney Basin	Silvies R. near Burns (966)	30,000	49	16
Central	Crescent Lake Net Inflow	7,000	63	24
	Ochoco Reservoir Net Inflow	3,000	22	9
	Odell Cr. nr. Crescent (3212)	19,000	79 d	51
	Squaw Cr. nr. Sisters (335)	34,000	72	57
	Tumalo Cr. & C. S. Canal (338a)	31,000	73	49
Southcentral	Chewaucan R. nr. Paisley (924)	40,000 e	76	36
	Deep Creek abv. Adel (9127)	50,000 e	100 f	47
Klamath Basin	Clear Lake Reservoir Net Inflow	35,000 g	31 h	16
	Gerber Reservoir Net Inflow	16,500 g	31 h	14
	Upper Klamath Lake Net Inflow	408,000	106	48
Southern	Applegate R. near Ruch (7212)	40,000	35	38
	Clearwater R. above Trap Cr. (7420)	45,000	81	61
	Fourmile Lake Net Inflow	5,000	74 i	41
	Hyatt Prairie Res. Net Inflow	4,000	79	82
	Little Butte Cr., N. Fk., below Fish Lake (Natural flow) (7230)	9,400	80 k	j
	N. Umpqua River below Lake Creek (7419)	112,000	79	54
	N. Umpqua River at Toketee Falls (7414)	265,000	80	57
	Rogue River, N. Fk., above Prospect (722)	220,000	80	59
Willamette Valley	Clackamas R.at Big Bottom (5911)	116,000	76	54
	McKenzie R.at McKenzie Br. (534)	420,000	78	65
	McKenzie R. near Vida (535)	800,000	71	57
	Willamette R., Mid Fk., at Eula (512)	510,000	68	52

c - 1931-43
d - 1934-43 average
e - April-June, incl., rather than April-Sept.
f - 1930-43 average
g - Stream year 1942-43
h - 1905-43 average
i - 1929-43, incl., lacking 1931
j - not available
k - 1929-42

COMPARISON OF SNOW COVER AS OF APRIL FIRST WITH THAT OF PREVIOUS YEARS

Snow-stored water now present above 5,000 feet:

As percent of that present one month ago	--	103
As percent of that present one year ago	--	53
As percent of that present two years ago	--	76
As percent of average	--	67

Snow-stored water now present from 2,000-5,000 feet:

As percent of that present one month ago	--	76
As percent of that present one year ago	--	42
As percent of that present two years ago	--	84
As percent of average	--	60

Water content of snow on 77 percent of all measured courses is less than at this time in 1943, and in 67 percent of the comparisons, is less than on about April 1 of 1942. Water content of snow on 86 percent of all measured courses is less than average.

The intent of the tabulation below is to show in a general way the relationship of April 1, 1944 snow cover to that of earlier years at a comparable date.

Water Content of Snow (Inches) as of About April 1

Stream Basin	Owyhee	Malheur-John Day	Harney-John Day	John Day-Burnt	Powder	Grande Ronde	Walla Walla	Crooked	Clackamas	Willamette Desch.	Rogue-Umpqua	Klamath Rogue	Klamath Rogue
Snow Course Year	Big Bend	Blue Mt. Springs	Izee Summit	Blue Mt. Summit	Bourne	Aneroid Lake	Toll-gate	Ochoco Mdws.	Peavine Ridge	Cascade Summit	Diam. Lake	Annie Sprg.	Billie Creek Divide
1928								7.5					
1929		9.4						7.8		28.1	9.4[c]		20.8
1930		4.1						0.6		10.0	3.5[c]	20.5	0.0
1931		9.1		5.2			21.7	6.2		16.2	9.0[c]	26.1	13.1
1932		22.3		N.R.		41.1	41.4	12.7		42.0	23.8[c]	23.6[b]	29.2[d]
1933		22.4		N.R.		40.4[a]	36.6	N.R.		43.3	33.0[c]	N.R.	31.3
1934		N.R.		N.R.		27.2[b]	0.0	0.0		N.R.	1.4[c]	N.R.	-
1935	8.8	11.0		N.R.		33.1	25.6	10.5		35.1	10.2[c]	55.8	32.1
1936	19.2	18.2	10.5	9.6	18.3	32.5	41.3	12.6		36.0	19.2[c]	56.1	38.2
1937	10.5	16.1	7.5	6.2	10.5	27.9	25.9	15.0	25.2	32.4	23.2	43.5	26.6
1938	11.4	23.4	8.8	8.9	17.1	47.3	23.0	14.7	23.7	31.4	33.1	61.9	26.4
1939	3.4	11.1	6.2	3.0	11.1	30.1	29.8	7.6	23.3	38.5	19.8	37.4	33.1
1940	3.8	8.8	0.0	1.0	11.9	31.5	18.7	3.8	2.9	15.4	9.8	44.1	9.4
1941	9.7	9.8	3.1	2.8	10.3	28.4	12.1	4.6	0.0	11.4	6.7	39.1	6.7
1942	10.4	12.6	6.3	9.0	13.6	33.6	18.4	9.9	9.3	19.7	12.1	31.9	19.3
1943	15.3	21.8	10.6	12.2	22.6	43.1	34.6	13.1	35.5	39.4	31.3	49.9	31.3
1944	5.6	8.2	5.6	4.6	8.4	21.0	20.0	5.0	9.8	15.9	10.6	23.9	17.0

Underscored is least April 1 water content of snow of record period for each snow course shown.

a - April 19 b - April 17 c - From Copco Water Station d - April 22 N.R. - No report

STATUS OF SNOW COVER AS OF APRIL FIRST

Summary of Snow Survey Data
by Watersheds as of About April First

Stream Basin	Number Of Snow Courses Averaged	Average Water Depth in Snow Cover (Inches) 1944	1943	1942	Avg. Past Yrs. of Record	Yrs. of Record	1944 Snow Water Depth (Inches) as Percent of that in 1943	1942	Avg.
Owyhee River	14	5.5	8.3				66		
	14	5.5		8.1				68	
	14	5.5			7.5	(2-9)			73
Malheur River	5	4.5	10.6				42		
	5	4.5		7.7				58	
	5	4.5			7.2	(6-14)			62
Burnt River	3	5.9	13.6				43		
	3	5.9		10.2				58	
	3	5.9			7.9	(5-11)			75
Powder River	7	11.5	21.5				53		
	7	11.5		13.7				84	
	7	11.5			15.1	(5-8)			76
Pine Creek	1	20.3	36.7				55		
	1	20.3		24.7				82	
	1	20.3			28.6	(6)			71
Grande Ronde River	10	15.1	27.8				54		
	10	15.1		17.3				87	
	10	15.1			20.4	(2-15)			74
Walla Walla River	1	20.0	34.6				58		
	1	20.0		18.4				109	
	1	20.0			25.3	(13)			79
Umatilla River	4	10.8	16.0				68		
	4	10.8		11.3				96	
	4	10.8			12.2	(5-15)			88
Willow Creek	1	6.9	9.0				77		
	1	6.9		12.2				57	
	1	6.9			9.6	(15)			72
John Day River	9	7.4	14.8				50		
	9	7.4		10.5				70	
	9	7.4			10.6	(5-15)			70
Deschutes River	7	10.1	28.4				36		
	7	10.1		13.6				74	
	7	10.1			19.5	(6-15)			52
Crooked River	3	4.4	9.9				44		
	3	4.4		8.4				52	
	3	4.4			7.1	(6-15)			62
Hood River	1	5.0	21.4				23		
	1	5.0		11.2				45	
	1	5.0			8.8	(11)			57

(Continued)

Stream Basin	Number Of Snow Courses Averaged	Average Water Depth in Snow Cover (Inches) 1944	1943	1942	Avg. Past Yrs. of Record	Yrs. of Record	1944 Snow Water Depth (Inches) as Percent of that in 1943	1942	Avg.
Sandy River	3	20.6	47.2				44		
	3	20.6		21.5				96	
	3	20.6			28.2	(7-12)			73
Clackamas River	1	9.8	35.5				28		
	1	9.8		9.3				105	
	1	9.8			17.1	(6-7)			57
Willamette River	9	13.6	34.9				39		
	10	12.3		14.9				83	
	10	12.3			19.1	(2-14)			64
Silver Lake Basin	1	0.0	3.3				0		
	1	0.0		-				-	
	1	0.0			1.1	(3)			0
Chewaucan River	1	3.3	7.0				47		
	1	3.3		5.3				62	
	1	3.3			4.6	(5)			72
Harney Basin	8	5.8	10.2				57		
	8	5.8		9.2				63	
	8	5.8			8.1	(4-13)			72
Guano Lake	2	3.3	4.6				72		
	2	3.3		8.6				38	
	2	3.3			4.9	(4)			67
Warner Lake	1	8.6	13.5				64		
	1	8.6		10.6				81	
	1	8.6			8.5	(5)			101
Umpqua River	7	9.1	17.5				52		
	7	9.1		8.7				105	
	7	9.1			14.1	(5-8)			64
Upper Rogue River	13	12.2	21.5				57		
	12	13.2		15.0				88	
	13	12.2			19.9	(7-13)			61
Applegate River	5	14.9	17.3				86		
	5	14.9		21.2				70	
	5	14.9			24.0	(3-9)			62
Illinois River	2	7.4	9.5				78		
	2	7.4		11.1				67	
	2	7.4			18.1	(7-8)			41
Klamath Lake Basin	21*	7.4	14.6				51		
	21*	7.4		8.7				85	
	21*	7.4			12.1	(5-17)			61
Goose Lake Basin	3*	6.4	6.3				102		
	3*	6.4		4.9				131	
	3*	6.4			5.4	(5-13)			118

* Including Copco water measurement stations.

STATUS OF WATERSHED SOIL MOISTURE

Soil moisture samples were not secured on Southern Oregon watershed soil moisture stations in the spring of 1944. Samples elsewhere in Oregon were secured at established soil moisture stations as included in the tabulation below. Soil samples, taken last fall, beneath the then existing snow cover, are reported on page 6, Snow Surveys and Irrigation Water Forecasts for Oregon, as of February 1, 1944.

Summary of Soil Moisture
Central and Eastern Oregon 1939-1944
(Soil moisture is expressed as percentage
of the soil dry weight.)

Soil Moisture Station	Date	Depth in Feet 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	0-3	3-5 or 3-6	0-5 or 0-6
Blue Mtn.	11-20-39	19.8	20.0	19.7	20.9	21.8	-	Bedrock		19.8	-	-
Summit	3-26-40	54.8	32.4	25.2	28.6	23.4	-	"		37.5	-	-
Elev. 5098	11-15-40	48.3	25.3	22.0	23.6	25.1	27.1	"		31.9	25.3	28.6
Sec. 6,	3-19-41	61.0	37.1	31.3	27.4	30.1	32.5	"		43.1	30.0	36.6
T. 12 S.,	10-31-41	36.0	25.0	27.4	25.7	25.9	31.6	"		29.5	27.7	28.6
R. 36 E.	3-21-42	54.8	46.2	36.5	30.4	33.4	35.0	"		45.8	32.9	39.4
	11-16-42	33.8	19.8	24.5	23.0	27.4	-	"		26.0	25.2	25.7
	3-26-44	54.6	31.0	25.6	27.6	30.6	38.6	"		37.1	32.3	34.7
Catherine	11-2-41	48.9	36.8	33.7	38.0	37.6	37.0	38.9	53.8	39.8	37.5	38.7
Creek	3-22-42	59.7	52.1	45.7	40.1	39.4	42.6	43.2	53.0	52.5	40.7	46.6
Elev. 4240	11-18-42	43.1	19.3	20.4	29.6	37.7	41.4	44.6	44.4	27.6	36.2	31.9
Sec. 27,	3-24-44	53.6	26.4	24.8	24.9	27.0	28.4	31.6	37.3	34.9	26.8	30.8
T. 5 S.,												
R. 41 E.												
Chemult	3-27-40	63.2	53.7	51.4	52.6	42.0	37.7	41.8	44.9	56.1	44.1	50.1
Elev. 4760	11-14-40	34.7	34.5	32.4	32.5	34.1	35.4	38.3	40.7	33.9	34.0	33.9
Sec. 21,	3-18-41	56.7	36.2	36.5	36.6	37.4	38.0	40.9	43.8	43.1	37.3	40.2
T. 27 S.,	11-4-41	31.5	29.4	30.6	32.2	33.8	35.2	36.9	41.6	30.5	33.7	32.1
R. 8 E.	3-20-42	35.9	35.4	39.3	35.8	37.1	39.1	42.2	45.8	36.9	37.3	37.1
	11-20-42	34.6	36.0	35.6	33.0	33.9	34.9	37.9	41.0	35.4	33.9	34.7
	3-21-44	58.8	35.2	33.2	32.4	34.8	35.6	38.2	42.1	42.4	34.3	38.3
Dooley Mtn.	11-16-40	38.9	17.9	9.2	8.2	11.8	13.1	Bedrock		22.0	11.0	16.5
Elev. 5300	3-19-41	47.4	21.9	19.7	18.8	24.6	22.3	"		29.7	21.9	25.8
Sec. 32,	10-31-41	14.5	12.8	12.8	13.5	15.8	15.2	"		13.4	14.8	14.1
T. 11 S.,	3-22-42	51.2	35.3	24.9	25.7	-	-	"		37.1	-	-
R. 40 E.	11-16-42	20.4	8.0	8.1	9.8	-	-	"		12.2	-	-
	3-26-44	43.9	26.1	15.2	10.5	10.9	-	"		28.4	-	-
Emigrant	11-2-41	56.2	59.7	30.4	25.2	26.0	40.5	31.7	-	48.8	30.6	39.7
Springs	3-23-42	71.8	66.8	33.8	28.9	29.1	37.6	33.6	-	57.5	31.9	44.7
Elev. 3900	11-18-42	43.6	37.3	18.4	18.2	24.8	41.6	57.5	-	33.1	28.2	30.6
Sec. 29,	3-24-44	60.4	32.3	25.4	21.8	25.2	-	-	-	39.4	-	-
T.1N.,R.35E.												

(Continued on page 8)

Summary of Watershed Soil Moisture (Continued)

Soil Moisture Station	Date	Depth in Feet 0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	0-3	3-5 or 3-6	0-5 or 0-6
Granite-	11-16-40	44.0	14.0	6.3	8.1	6.0	Bedrock			21.4	7.0	15.7
Sumpter Div.	3-19-41	58.5	24.9	13.9	14.9	7.5	"			32.4	11.2	23.9
Elev. 5790	11-1-41	38.5	17.3	13.5	11.2	12.4	"			23.1	11.8	18.6
Sec. 22,	3-24-42	45.4	17.9	12.9	14.9	16.4	"			25.4	15.7	21.5
T. 9 S.,	11-17-42	22.0	7.1	6.9	7.9	7.6	"			12.0	7.8	10.3
R. 36 E.	3-25-44	54.7	19.9	11.1	7.2	11.9	"			28.6	9.6	21.0
Ochoco	11-21-39	17.0	30.0	39.7	41.7	43.1	43.7	-	-	28.9	42.8	35.9
Mountain	3-26-40	58.3	53.6	59.7	42.4	41.0	41.8	40.0	42.9	57.2	41.7	49.5
Elev. 5080	11-15-40	40.9	35.0	39.2	43.0	38.0	37.3	40.2	40.2	38.4	39.4	38.9
Sec. 8,	3-18-41	56.1	50.5	43.9	42.4	45.3	45.3	46.5	45.9	50.2	44.3	47.2
T. 13 S.,	11-3-41	42.6	44.0	43.0	41.2	40.8	40.6	40.8	45.6	43.2	40.9	42.0
R. 20 E.	3-21-42	49.5	54.6	45.5	44.1	42.5	44.3	42.7	40.4	49.9	43.6	46.8
	11-19-42	36.4	34.1	40.6	40.0	41.1	41.5	40.4	40.1	37.0	40.9	39.0
	3-22-44	62.4	44.2	41.6	41.0	37.4	39.0	40.9	39.3	49.4	39.1	44.3
Quartz Mtn.	10-28-41	29.8	26.7	20.0	23.4	25.5	27.4	40.2	54.5	25.5	25.4	25.5
Elev. 5350	3-25-42	33.5	34.6	39.4	39.9	36.2	31.4	38.5	57.4	35.8	35.8	35.8
Sec. 33,	11-14-42	20.7	18.0	23.5	19.4	-	-	-	-	20.7	-	-
T. 37 S.,	3-28-44	35.8	18.9	24.4	28.3	34.1	26.3	43.8	52.0	26.4	29.6	28.0
R. 16 E.												
Starr Ridge	10-30-41	29.9	22.4	18.7	14.2	12.4	12.7	13.4	14.6	23.7	13.1	18.4
Elev. 5156	3-24-42	35.0	28.2	26.9	15.6	13.4	14.8	13.9	13.7	30.0	14.6	22.3
Sec. 20,	11-15-42	22.1	13.0	10.4	12.0	12.3	13.9	14.6	15.0	15.2	12.7	14.0
T. 15 S.,	3-27-44	39.5	25.6	20.3	13.1	14.0	13.0	16.1	15.0	28.5	13.4	20.9
R. 31 E.												
Tollgate	11-2-41	58.5	54.1	33.0	32.7	28.9	34.1	40.6	41.6	48.5	31.9	40.2
Elev. 5070	3-23-42	65.6	56.4	33.3	31.8	30.9	36.6	38.4	42.6	51.8	33.1	42.4
Sec. 32,	11-18-42	50.2	43.1	28.6	28.0	27.8	33.2	42.5	37.8	40.6	29.7	35.2
T. 4 N.,	3-23-44	61.0	53.0	35.6	34.2	30.7	34.0	38.9	45.9	49.9	33.0	41.4
R. 38 E.												

Above normal precipitation and snow cover in 1942-43 resulted then in well-wetted watersheds. Had 1943-44 precipitation been normal or nearly so, watershed soil moisture conditions unusually favorable to snow water delivery would doubtless now exist. However, due to markedly deficient precipitation in 1943-44, this favorable balance is considered canceled. Therefore, watershed soil moisture conditions are now believed about average or slightly less, and stream flow expectancy from any given snow cover should be neither increased nor decreased from average in 1944.

STATUS OF RESERVOIR STORAGE AS OF APRIL FIRST

In the following tabulation, water storage in acre feet in important Oregon reservoirs as of about April 1, 1944, is compared with storage as of approximately the same date in 1943, 1942, 1941 and 1940.

Storage Reservoir	Stream Basin	Capacity Acre Ft.	Acre Feet in Storage About 4-1-44	About 4-1-43	About 4-1-42	About 4-1-41	About 4-1-40
Agency Valley	Malheur	60,000	50,210	32,375[c]	Full	58,980	Full
Antelope	Owyhee	36,550	4,500	27,733	19,871	24,500	18,093
Clear Lake	Lost River	440,240[b]	296,080[b]	362,610[b,c]	304,780[b]	257,790[b]	277,920[b]
Cold Springs	Umatilla	50,000	Full	Full	48,600	49,850	45,250
Cottage Grove	Willamette	30,000[b]	16,770[b]	20,600[b]	-	-	-
Cottonwood	Goose Lake	4,160	800	Empty [c]	No report	1,505	3,541
Crane Prairie	Deschutes	50,000	47,307	40,444	27,100	26,420	36,240[a]
Crescent Lake	Deschutes	80,000	54,310	34,810	21,980	21,980	34,440[a]
Drew Creek	Goose Lake	62,500	46,000	62,000	53,000	52,000	Full
Emigrant Gap	Rogue	8,200	5,946	Full	Full	8,132	Full
Fern Ridge	Willamette	95,000[b]	28,470[b]	73,300[b]	-	-	-
Fish Lake	Rogue	7,720	6,988	5,998	3,719	3,799	4,928
Fourmile Lake	Klamath[d]	14,000	11,767	4,515	3,473	3,365	8,198
Gerber	Klamath	94,000[b]	54,320[b]	75,470[b,c]	57,720[b]	62,420[b,c]	80,120[b]
Hyatt Prairie	Klamath[d]	16,000	7,600	12,720	7,403	4,356	7,407
McKay	Umatilla	74,000	55,650	64,280[c]	71,210	34,250	54,160
Ochoco	Crooked	47,500	23,760	Full	27,060	10,060	17,490
Owyhee	Owyhee	715,000[b]	525,320[b]	617,200[b,c]	634,440[b]	Full	611,150[b]
Rock Creek	White	1,400	775	No previous	reports		
Thief Valley	Powder	17,400	Full	Full	Full	Full	Full
Thompson Valley	Silver Lake	19,000	7,184	15,000	2,510	7,310	10,710
Unity	Burnt	25,260	12,000	12,166[c]	14,660	20,430	25,220
Upper Klamath	Klamath	524,800[b]	368,300[b]	391,500[b,c]	461,600[b]	404,500[b]	488,400[b]
Wallowa Lake	Wallowa	40,920	31,710	26,000	33,180	19,420	13,820
Warmsprings	Malheur	190,000	131,430	179,000[c]	Full	181,400	157,400
Wickiup	Deschutes	180,000	9,000	10,000[c]	-	-	-
Willow Creek	Malheur	26,000	11,640	9,000[c]	No report	No report	6,500[e]

a - Estimated
b - Available for use
c - Water being by-passed, or water level being lowered, to provide space for anticipated inflow.
d - By ditch to Rogue River side
e - Approximate

IMPORTANT OREGON RESERVOIRS

RESERVOIR NAME	NUMBER
Agency Valley	1354
Antelope	1230
Clear Lake	823
Clear Lake	36R1
Cold Springs	22R1
Cottage Grove	5220
Cottonwood	8115
Crane Prairie	3220
Crescent Lake	322
Drew Creek	814
Emigrant Gap	7267
Fern Ridge	5413
Fish Lake	7237
Four Mile Lake	8321
Gerber	8215
Hyatt Prairie	8320
McKay	2231
Ochoco	3420
Owyhee	1234
Rock Creek	36R3
Thief Valley	1514
Thompson Valley	9411
Unity	1415
Upper Klamath Lake	832
Wallowa Lake	186
Warm Springs	1322
Wickiup	3137
Willow Creek No. 3	1323

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7-L-3060

INDEX TO SNOW COURSES

Number	Name	Elev.
	UPPER COLUMBIA DRAINAGE Lower Snake in Oregon	
	OWYHEE RIVER	
Nev.1	Big Bend	6800
Nev.2	Buckskin, Lower	6800
Nev.3	Buckskin, Upper	8200
952	Fish Creek	7900
Nev.5	Fry Canyon	6800
Nev.6	Gold Creek Ranger Sta.	6600
Nev.7	Granite Peak	8600
Nev.8	Jack Creek, Lower	7000
Nev.9	Jack Creek, Upper	7800
Nev.10	Martin Creek	7000
Nev.11	Rodeo Flat	7000
Ida.12	Silver City	6400
951	Silvies	6900
Ida.13	South Mountain	5100
Nev.15	Taylor Canyon	5200
	MALHEUR RIVER	
133	Blue Mountain Spring	5900
137	Crane Prairie	5375
136	Lake Creek	5120
134	Rock Spring	5100
135	Stinking Water	4800
	BURNT RIVER	
141	Blue Mountain Summit	5098
156	Dooley Mountain	5430
142	Tipton	5100
	POWDER RIVER	
155	Anthony Lake	7125
154	Bourne	5800
156	Dooley Mountain	5430
151B	Eilertson Meadows	5400
249	Gold Center	5340
184	Summit Springs	6000
185	Taylor Green	5740
	PINE CREEK	
161	Schneider Meadows	5400
	GRANDE RONDE RIVER	
183	Aneroid Lake	7480
155	Anthony Lake	7125
188	Beaver Reservoir	5340
187	Camp Carson	5970
186	Moss Spring	5860
248	Schoolmarm	4775
184	Summit Springs	6000
185	Taylor Green	5740
212	Tollgate	5070

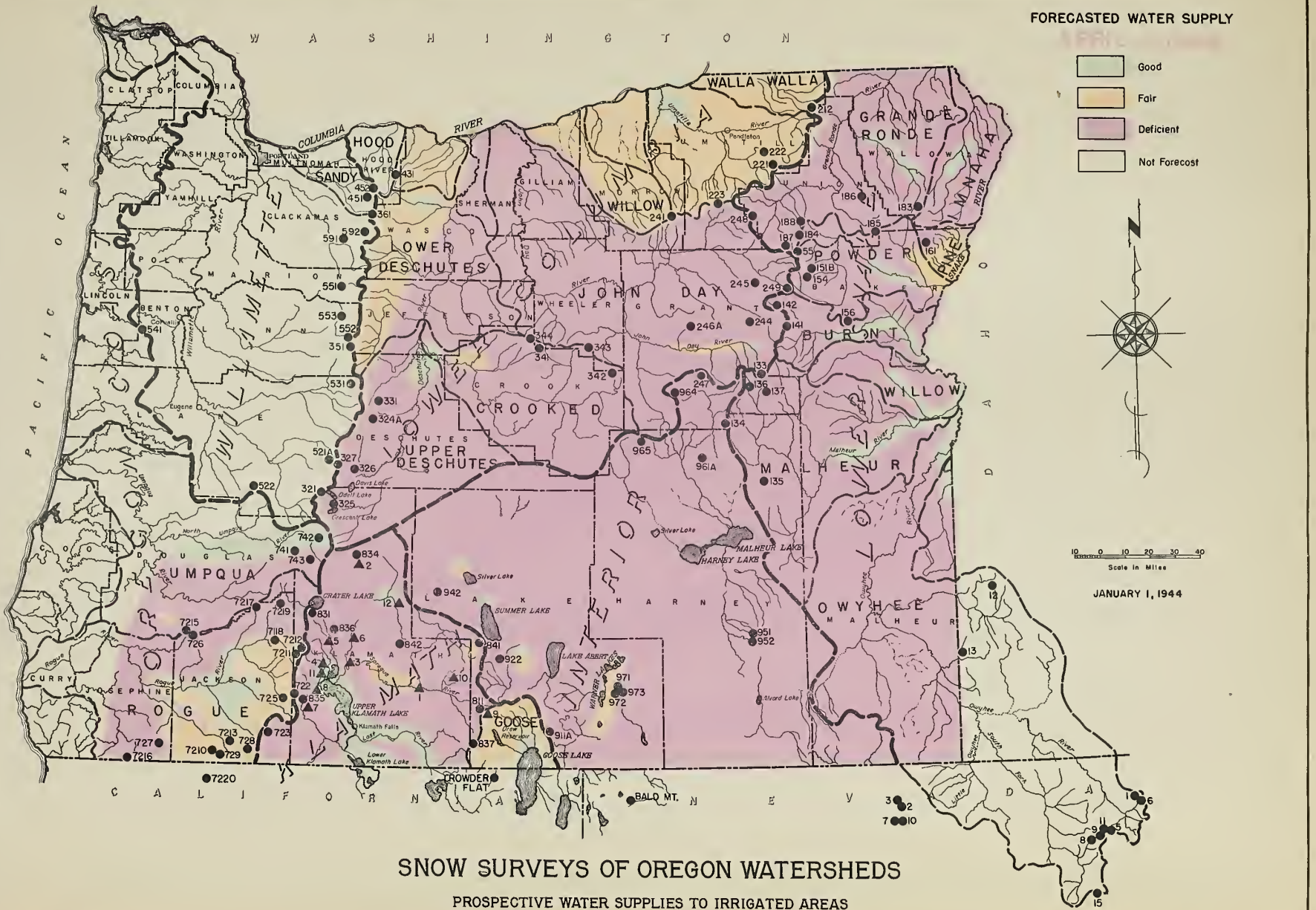
Number	Name	Elev.
	LOWER COLUMBIA DRAINAGE	
	WALLA WALLA RIVER	
212	Tollgate	5070
	UMATILLA RIVER	
222	Emigrant Springs	3925
223	Lucky Strike	5050
221	Meacham	4300
212	Tollgate	5070
	WILLOW CREEK	
241	Arbuckle Mountain	5400
	JOHN DAY RIVER	
241	Arbuckle Mountain	5400
246A	Beech Creek Summit	4800
133	Blue Mountain Spring	5900
141	Blue Mountain Summit	5098
244	Dixie Springs	6650
249	Gold Center	5340
964	Izee Summit	5293
245	Olive Lake	6000
248	Schoolmarm	4775
247	Starr Ridge	5156
	DESCHUTES RIVER	
326	Caldwell Ranch	4400
321	Cascade Summit	4880
327	Charlton Lake	5750
361	Clear Lake	3500
325	Crescent Lake	4760
343	Derr	5670
351	Hogg Pass	4755
344	Marks Creek	4540
324A	New Dutchman Flat	6400
341	Ochoco Meadows	5200
342	Tamarack	4800
331	Three Creeks Meadows	5600
	HOOD RIVER	
431	Brooks Meadows	4300
	SANDY RIVER	
361	Clear Lake	3500
452	Phlox Point - Mt. Hood	5600
451	Still Creek	3700
	CLACKAMAS RIVER	
592	Clackamas Lake	3400
591	Peavine Ridge	3500
	WILLAMETTE RIVER	
551	Breitenbush	2325
321	Cascade Summit	4880
522	Champion	4500
327	Charlton Lake	5750
351	Hogg Pass	4755
531	McKenzie	4800
553	Marion Forks	2730
541	Mary's Peak	3620
552	Santiam Junction	3990
521A	Waldo Lake	5500

Number	Name	Elev.
	KLAMATH LAKE BASIN	
831	Annie Spring	6018
722	Billie Creek Divide	6000
834	Chemult No. 1	4760
Calif.	Crowder Flat	5200
723	Hyatt Prairie Reservoir	4900
835	Lake of the Woods	4960
811	Quartz Mountain	5320
7211	Seven Lakes No. 1	6800
7212	Seven Lakes No. 2	6200
837	Strawberry	5600
841	Summer Rim	7200
836	Sun Mountain	5350
842	Taylor Butte	5100
	GOOSE LAKE BASIN	
911A	Camas Creek	5720
811	Quartz Mountain	5320
837	Strawberry	5600

INDEX TO CALIFORNIA-OREGON POWER COMPANY SNOW WATER STATIONS

Number	Name	Elev.
	KLAMATH LAKE BASIN	
1	Beatty	4300
2	Chemult	4761
3	Chiloquin	4187
4	Crystal	4200
5	Fort Klamath	4150
6	Kirk	4533
7	Lake of the Woods	4960
8	Pelican	4200
9	Quartz Mountain	5504
10	Richardson Ranch	4800
11	Rocky Point	4150
12	Yamsey	4600
	GOOSE LAKE BASIN	
9	Quartz Mountain	5504

Number	Name	Elev.
	INTERIOR DRAINAGE	
	SILVER LAKE	
942	Silver Creek	4900
	CHEWAUCAN RIVER	
922	Mill Creek	6200
	HARNEY BASIN	
973	Deer Creek	6670
952	Fish Creek	7900
971	Hart Mountain	6350
961A	Idylwild Park	5200
964	Izee Summit	5293
134	Rock Spring	5100
951	Silvies	6900
247	Starr Ridge	5156
	WARNER LAKE	
911A	Camas Creek	5720
	GUANO LAKE	
Nev.	Bald Mountain	6720
972	Guano Creek	6480
	WEST COAST DRAINAGE	
	UMPQUA RIVER	
522	Champion	4500
743	Diamond Lake	5315
726	Goolaway Gap	3000
7215	Goolaway Mountain	3730
742	N.Umpqua near Lake Creek	4215
741	Trap Creek	3800
7217	Whaleback	5140
	ROGUE RIVER	
7216	Althouse	4400
831	Annie Spring	6018
729	Big Red Mountain	6500
722	Billie Creek Divide	6000
725	Fish Lake	4865
726	Goolaway Gap	3000
7215	Goolaway Mountain	3730
727	Grayback Peak	6000
723	Hyatt Prairie Reservoir	4900
7210	Little Red Mountain	6500
7220	Scragg Mountain	6200
7211	Seven Lakes No. 1	6800
7212	Seven Lakes No. 2	6200
7219	Silver Burn	3720
728	Siskiyou Summit	4630
7218	South Fork Canal	3500
7213	Wagner Butte	6900
7217	Whaleback	5140



SNOW SURVEYS OF OREGON WATERSHEDS

PROSPECTIVE WATER SUPPLIES TO IRRIGATED AREAS

(Dry Farm Areas or Forest and Range Lands Not Necessarily Included)

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE
7-1-8563

STATUS OF VALLEY PRECIPITATION AS OF OCTOBER 1 TO DATE

Month	Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Period	
Section	P	D	P	D	P	D	P	D	P	D	P	D	P	D
S. E.	1.53	+0.77	0.46	-0.54	0.46	-0.68	0.73	-0.46	0.73	-0.46	0.5	-0.3	4.4	-1.7
S. C.	2.00	+0.98	0.81	-0.89	0.71	-1.16	1.14	-0.76	1.43	-0.13	1.0	-0.3	7.1	-2.3
N. C.	1.93	+1.14	0.89	-0.68	0.51	-0.87	0.59	-0.89	1.09	-0.01	0.2	-0.7	5.2	-2.0
Col. Riv.	2.21	+1.20	0.60	-1.26	0.84	-0.74	0.64	-1.01	1.33	+0.02	0.6	-0.6	6.2	-2.4
Wal. Mts.	1.43	-0.26	0.74	-0.97	0.93	-0.85	0.53	-1.26	1.38	-0.19	1.0	-0.5	6.0	-4.0
Blue Mts.	1.89	+0.40	0.91	-1.31	0.97	-1.11	0.60	-1.51	1.65	-0.18	1.2	-0.6	7.2	-4.3
Southern	3.70	+1.89	1.58	-2.22	1.25	-2.39	2.42	-1.13	2.56	-0.42	2.0	-0.4	13.5	-4.7
Willamette	7.68	+3.79	3.85	-4.22	3.75	-4.38	4.60	-3.06	4.94	-1.21	3.0	-2.7	27.8	-11.8
Area	2.80	+1.24	1.23	-1.51	1.18	-1.52	1.41	-1.26	1.89	-0.32	1.2	-0.8	9.7	-4.2

P - Inches precipitation. D - Inches departure from normal.

S. E. - Southeastern Oregon range lands, Harney and Malheur Counties.
S. C. - Southcentral Oregon range lands, Lake County and Klamath County, except the Cascade Mountains.
N. C. - Northcentral Oregon wheat and range lands, Crook, Deschutes, Jefferson, Wheeler and part of Grant Counties.
Col. Riv. - Columbia River area, wheat and range lands, Gilliam, Morrow, Sherman, Wasco and part of Umatilla Counties.
Wal. Mts. - Wallowa Mountain area, forest and range lands, Wallowa and part of Baker County.
Blue Mts. - The Blue Mountain forest and range area, Union and parts of Baker, Grant and Umatilla Counties.
Southern - Southern Oregon irrigated section, Jackson and Josephine Counties.
Willamette - Parts of Polk, Benton, Yamhill, Washington, Lane and all of Linn, Marion, Clackamas and Multnomah Counties.

Note: Data for the last month shown above are preliminary, as they are based on a few stations only. Data for earlier months have been corrected to include all the stations in Climatological Data for the area.

TRIBUTARY BASINS (Primary & Secondary & Snow Courses)	LOCATION Oregon Number	Sec.	Twp.	Range	Elev.	SNOW COVER MEASUREMENTS About April 1, 1944 Date	Avg. Snow Depth (In.)	Avg. Water Depth (In.)	Average Water Depth (Inches) One Month Ago (3-1-44)	One Year Ago (4-1-43)	Two Years Ago (4-1-42)	Avg. for past yrs. of record	Yrs. of record
UPPER COLUMBIA DRAINAGE													
LOWER SNAKE IN OREGON													
OWYHEE RIVER													
Granite Peak	Nev.	27	44N	39E	8600	3-24	35.9	13.0	7.4	19.1	14.9	16.0	4
Upper Buckskin	Nev.	14	45N	39E	8200	3-27	30.0	11.5	-	15.6	11.4	11.2	8
Upper Jack Creek	Nev.	9	42N	53E	7800	4-4	19.6 a	7.4	9.4	9.4	11.0	9.5	3
Midas	Nev.	18	39N	46E	7200	4-4	3.0 a	0.9	4.8	0.2	0.5	0.5	3
Lower Jack Creek	Nev.	19	42N	53E	7000	Abt.4-4	0.0 a	0.0	4.8	0.0	4.3	2.9	4
Martin Creek	Nev.	24	44N	39E	7000	3-24	22.9	7.1	3.8	5.6	8.9	7.0	3
Rodeo Flat	Nev.	31	43N	54E	7000	4-4	20.7 a	6.5	10.1	10.6	9.6	9.8	3
Big Bend	Nev.	30	45N	56E	6800	4-2	18.6 a	5.6	6.4	15.3	10.4	10.3	9
Fry Canyon	Nev.	32	43N	54E	6800	4-5	23.3 a	6.5	8.2	8.7	9.0	8.8	3
Lower Buckskin	Nev.	25	45N	39E	6800	3-26	24.7	8.2	-	8.4	7.0	7.1	3
Gold Cr. Ranger Sta.	Nev.	32	45N	56E	6600	4-2	11.3 a	3.5	4.0	8.9	7.6	7.1	4
South Mountain No. 2	Idaho	35	7S	5W	6340	4-1	18.5	6.5	7.1	13.8	12.1	10.8	4
Tremewan Ranch	Nev.	4	29N	55E	5600	Abt.4-2	0.0 a	0.0	2.9	0.0	0.5	0.2	2
Taylor Canyon	Nev.	32	39N	53E	5200	Abt.4-1	0.0 a	0.0	4.2	0.0	6.4	3.7	3
MALHEUR RIVER													
Blue Mountain Springs	133	21	15S	35E	5900	3-29	26.9	8.2	7.4	21.8	12.6	14.3	14
Crane Prairie	137	24	16S	34E	5375	3-28	19.2	5.8	6.3	12.3	8.2	7.2	6
Lake Creek	136	10	16S	33½E	5120	3-27	21.7	5.6	6.2	14.4	7.5	8.7	6
Rock Spring	134	23	18S	32E	5100	3-27	11.6	3.1	4.8	4.3	4.8	4.5	8
Stinking Water	135	33	21S	34E	4800	3-28	0.0 a	0.0	4.3	0.0	5.3	1.1	6

a - Telegraphic; subject to minor revision.

TRIBUTARY BASINS (Primary & Secondary & Snow Courses)	LOCATION Oregon Number	Sec.	Twp.	Range	Elev.	SNOW COVER MEASUREMENTS About April 1, 1944 Date	Avg. Snow Depth (In.)	Avg. Water Depth (In.)	Average Water Depth (Inches) One Month Ago (3-1-44)	One Year Ago (4-1-43)	Two Years Ago (4-1-42)	Avg.for past yrs.of record	Yrs. of record
BURNT RIVER													
Dooley Mountain	156	32	11S	40E	5430	3-28	21.5	7.2	5.9	11.7	11.7	7.9	5
Tipton	142	34	10S	35½E	5100	3-27	17.1	5.8	-	17.0	9.9	9.5	11
Blue Mountain Summit	141	6	12S	36E	5098	3-28	15.6	4.6	4.6	12.2	9.0	6.4	9
POWDER RIVER													
Anthony Lake	155	18	7S	37E	7125	3-29	59.5	20.5	13.0	38.0	18.8	25.7	8
Summit Springs	184	9	6S	37E	6000	3-31	49.4	18.2	-	27.2	16.7	21.3	8
Bourne	154	33	8S	37E	5800	3-29	24.9	8.4	8.7	22.6	13.6	14.4	8
Taylor Green	185	3	6S	42E	5740	3-28	39.6	11.7	-	22.1	12.2	15.0	6
Dooley Mountain	156	32	11S	40E	5430	3-28	21.5	7.2	5.9	11.7	11.7	7.9	5
Eilertson Meadows	151B	18	8S	38E	5400	3-27	21.9	6.5	5.2	14.7	10.9	11.7	6
Gold Center	249	21	9S	36E	5340	3-28	23.3	8.0	8.2	14.4	11.9	9.9	5
PINE CREEK													
Schneider Meadows	161	35	6S	45E	5400	3-27	58.4	20.3	-	36.7	24.7	28.6	6
GRANDE RONDE RIVER													
Aneroid Lake	183	16	4S	45E	7480	3-27	75.2	21.0	16.8	43.1	33.6	34.9	10
Anthony Lake	155	18	7S	37E	7125	3-29	59.5	20.5	13.0	38.0	18.8	25.7	8
Aneroid Lake No. 2	183A	16	4S	45E	7000	3-27	60.2	18.8	13.3	32.8	27.1	30.0	2
Summit Springs	184	9	6S	37E	6000	3-31	49.4	18.2	-	27.2	16.7	21.3	8
Camp Carson	187	33	6S	36E	5970	3-29	22.4	5.5	-	18.6	9.6	9.1	6
Moss Spring	186	27	3S	41E	5860	3-27	69.5	19.5	13.5	34.6	18.6	24.7	6
Taylor Green	185	3	6S	42E	5740	3-28	39.6	11.7	-	22.1	12.2	15.0	6

TRIBUTARY BASINS (Primary & Secondary & Snow Courses)	LOCATION Oregon Number	Sec.	Twp.	Range	Elev.	SNOW COVER MEASUREMENTS About April 1, 1944 Date	Avg. Snow Depth (In.)	Avg. Water Depth (In.)	Average Water Depth (Inches) One Month Ago (3-1-44)	One Year Ago (4-1-43)	Two Years Ago (4-1-42)	Avg. for past yrs. of record	Yrs. of record
GRANDE RONDE RIVER (Cont'd)													
Beaver Reservoir	188	8	5S	37E	5340	3-28	27.4	8.0	6.8	14.8	10.0	10.4	5
Tollgate	212	32	4N	38E	5070	3-29	52.7	20.0	19.9	34.6	18.4	25.3	13
Meacham	221	24&25	1S	35E	4300	3-27	24.0	8.2	7.0	12.3	7.9	7.7	15
LOWER COLUMBIA DRAINAGE													
WALLA WALLA RIVER													
Tollgate	212	32	4N	38E	5070	3-29	52.7	20.0	19.9	34.6	18.4	25.3	13
UMATILLA RIVER													
Tollgate	212	32	4N	38E	5070	3-29	52.7	20.0	19.9	34.6	18.4	25.3	13
Lucky Strike	223	28	3S	32E	5050	3-25	31.6	9.5	8.2	12.2	13.5	10.7	5
Meacham	221	24&25	1S	35E	4300	3-27	24.0	8.2	7.0	12.3	7.9	7.7	15
Emigrant Springs	222	29	1N	35E	3925	3-27	14.2	5.7	5.2	4.8	5.5	5.0	15
WILLOW CREEK													
Arbuckle Mountain	241	33	4S	29E	5400	3-29	21.5	6.9	8.2	9.0	12.2	9.6	15
JOHN DAY RIVER													
Dixie Springs	244	28	11S	34E	6650	3-27	49.2	15.3	-	29.0	18.4	22.8	8
Snow Mountain	965	1	19S	26E	6300	3-31	20.7	6.1	5.6	-	-	-	0
Olive Lake	245	14	9S	33½E	6000	3-28	41.9	11.0	8.6	21.6	15.0	17.2	8
Blue Mountain Springs	133	21	15S	35E	5900	3-29	26.9	8.2	7.4	21.8	12.6	14.3	14
Arbuckle Mountain	241	33	4S	29E	5400	3-29	21.5	6.9	8.2	9.0	12.2	9.6	15
Gold Center	249	21	9S	36E	5340	3-28	23.3	8.0	8.2	14.4	11.9	9.9	5
Izee Summit	964	28	16S	29E	5293	3-28	15.6	5.6	6.1	10.6	6.3	6.6	8
Starr Ridge	247B	20	15S	31E	5150	3-28	11.3	3.7	5.0	8.4	3.2	3.5	8

TRIBUTARY BASINS (Primary & Secondary & Snow Courses)	LOCATION Oregon Number	Sec.	Twp.	Range	Elev.	SNOW COVER MEASUREMENTS About April 1, 1944 Date	Avg. Snow Depth (In.)	Avg. Water Depth (In.)	Average Water Depth (Inches) One Month Ago (3-1-44)	One Year Ago (4-1-43)	Two Years Ago (4-1-42)	Avg. for past yrs. of record	Yrs. of record
JOHN DAY RIVER (Cont'd)													
Blue Mountain Summit	141	6	12S	36E	5098	3-28	15.6	4.6	4.6	12.2	9.0	6.4	9
Beech Creek Summit	246A	4	12S	30E	4800	3-27	9.2	3.5	4.7	6.0	6.0	4.8	7
DESCHUTES RIVER													
New Dutchman	324A	21	18S	9E	6400	Measurement Delayed			-	-	39.4	47.4	9
Snow Mountain	965	1	19S	26E	6300	3-31	20.7	6.1	5.6	-	-	-	0
Charlton Lake	327	23	21S	6E	5750	3-29	42.5	12.9	-	40.7	19.5	26.0	7
Derr	343	14	13S	23E	5670	3-30	21.4	7.4	-	11.3	10.9	9.8	7
Three Creeks Meadows	331	3	17S	9E	5600	3-28	23.4	8.4	-	28.7	11.8	19.0	15
Ochoco Meadows	341	21	13S	20E	5200	3-30	18.4	5.0	6.1	13.1	9.9	8.4	15
Cascade Summit	321	7	23S	6E	4880	3-29	44.1	15.9	14.4	39.4	19.7	28.5	14
Crescent Lake	325	11	24S	6E	4760	3-30	0.0	0.0	-	Trace	0.0	7.3	9
Hogg Pass	351	24	13S	7½E	4755	3-29	61.1	22.9	20.2	53.8	32.6	35.6	6
Marks Creek	344	25	12S	19E	4540	3-30	2.0	0.7	2.4	5.3	4.4	3.1	6
Caldwell Ranch	326	30	21S	8E	4400	3-31	6.7	2.6	-	13.8	3.9	7.3	7
Clear Lake	361	29	4S	9E	3500	3-25	25.0	8.2	5.9	22.2	7.9	13.1	12
HOOD RIVER													
Brooks Meadows	431	2	2S	10E	4300	3-23	13.9	5.0	-	21.4	11.2	8.8	11
SANDY RIVER													
Phlox Point - Mt.Hood	452	6	3S	9E	5600	3-28	106.9	39.0	25.2	81.2	43.0	53.7	7
Still Creek	451	25	3S	8½E	3700	3-28	43.3	14.7	10.2	38.3	13.5	17.8	7
Clear Lake	361	29	4S	9E	3500	3-25	25.0	8.2	5.9	22.2	7.9	13.1	12
CLACKAMAS RIVER													
Peavine Ridge	591	14&15	6S	7E	3500	4-3	24.9	9.8	7.3	35.5	9.3	17.1	7
Clackamas Lake	592	35	5S	8½E	3400	No Report			4.1	24.8	6.2	10.2	6

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WILLAMETTE RIVER													
Charlton Lake	327	23	21S	6E	5750	3-29	42.5	12.9	-	40.7	19.5	26.0	7
Waldo Lake	521A	15	21S	6E	5500	3-30	38.2	12.9	-	39.2	18.1	23.4	6
Cascade Summit	321	7	23S	6E	4880	3-29	44.1	15.9	14.4	39.4	19.7	28.5	14
McKenzie	531	35	15S	7½E	4800	4-1	58.0	25.2	-	50.6	22.4	30.0	5
Hogg Pass	351	24	13S	7½E	4755	3-29	61.1	22.9	20.2	53.8	32.6	35.6	6
Champion	522	12	23S	1E	4500	4-1	37.8	16.1	14.3	33.1	13.3	18.5	5
Santiam Junction	552	14	13S	7E	3990	3-29	22.1	8.3	6.8	33.2	14.7	16.0	3
Mary's Peak	541	21	12S	7W	3620	3-28	19.4	6.9	-	3.8	4.2	4.6	5
Marion Forks	553	28	11S	7E	2730	3-29	4.0	1.5	3.4	20.6	4.5	8.4	3
Breitenbush	551	21	9S	7E	2325	3-31	0.0	0.0	0.2*	-	0.0	0.0	2
INTERIOR DRAINAGE													
SILVER LAKE													
Silver Creek	942	25&26	29S	13E	4900	3-30	0.0	0.0	2.7	3.3	-	1.1	3
CHEWAUCAN RIVER													
Mill Creek	922	1	34S	17E	6200	4-4	13.6	3.3	4.2	7.0	5.3	4.6	5
HARNEY BASIN													
Fish Creek	952	4	33S	33E	7900	3-26	47.3	16.0	-	34.1	21.8	24.5	5
Silvies	951	35	32S	33E	6900	3-27	28.6	10.0	-	12.3	14.6	13.3	7
Deer Creek	973	17	36S	26E	6670	3-28	20.0	6.2	5.9	6.4	10.5	7.6	4
Hart Mountain	971	1	36S	25E	6350	3-28	Trace	Trace	2.8	1.3	8.0	2.0	5
Snow Mountain	965	1	19S	26E	6300	3-31	20.7	6.1	5.6	-	-	-	0
Izee Summit	964	28	16S	29E	5293	3-28	15.6	5.6	6.1	10.6	6.3	6.6	8

* Estimated from depth.

TRIBUTARY BASINS (Primary & Secondary & Snow Courses)	LOCATION Oregon Number	Sec.	Twp.	Range	Elev.	SNOW COVER MEASUREMENTS About April 1, 1944 Date	Avg. Snow Depth (In.)	Avg. Water Depth (In.)	Average Water Depth (Inches) One Month Ago (3-1-44)	One Year Ago (4-1-43)	Two Years Ago (4-1-42)	Avg. for past yrs. of record	Yrs. of record
HARNEY BASIN (Cont'd.)													
Idylwild Camp	961A	33	20S	31E	5200	3-27	8.2	2.1	4.3	4.5	4.0	2.7	13
Starr Ridge	247B	20	15S	31E	5150	3-28	11.3	3.7	5.0	8.4	3.2	3.5	8
Rock Spring	134	23	18S	32E	5100	3-27	11.6	3.1	4.8	4.3	4.8	4.5	8
GUANO LAKE													
Bald Mountain	Nev.	17	45N	21E	6720	4-1	0.0	0.0	3.4	4.3	4.5	3.4	4
Guano Creek	972	13	36S	25E	6480	3-28	18.9	6.6	4.4	4.9	12.8	6.4	4
WARNER LAKE													
Camas Creek	911A	5	39S	21E	5720	3-28	25.0	8.6	7.6	13.5	10.6	8.5	5
WEST COAST DRAINAGE													
UMPQUA RIVER													
Diamond Lake	743	29	27S	6E	5315	3-30	27.0	10.6	10.6	31.3	12.1	19.4	7
Whaleback	7217	3	31S	2E	5140	3-30	58.6	24.7	-	39.3	25.8	33.0	7
Champion	522	12	23S	1E	4500	4-1	37.8	16.1	14.3	33.1	13.3	18.5	5
N.Umpqua nr.Lake Cr.	742	19	26S	6E	4215	3-30	13.4	5.8	-	7.5	4.6	8.8	7
Trap Creek	741	1	27S	4E	3800	3-31	14.3	5.4	-	10.8	5.4	10.6	7
Goolaway Mountain	7215	30	32S	3W	3730	3-28	3.4	1.2	2.7	0.6	Trace	6.1	7
Goolaway Gap	726	32	32S	3W	3000	3-28	0.0	0.0	1.0	0.0	0.0	2.0	8
ROGUE RIVER													
Wagner Butte	7213	1	40S	1W	6900	4-3	28.8	10.8	11.9	10.1	15.8	16.9	9
Seven Lakes No. 1	7211	3	34S	5E	6800	3-29	88.2	36.4	-	76.6*	37.3	58.3	8
Big Red Mountain	729	31	40S	1W	6500	3-29	50.3	19.7	-	23.2	28.7	31.3	8

* Partly estimated.

TRIBUTARY BASINS (Primary & Secondary & Snow Courses)	LOCATION Oregon Number	Sec.	Twp.	Range	Elev.	SNOW COVER MEASUREMENTS About April 1, 1944 Date	Avg. Snow Depth (In.)	Avg. Water Depth (In.)	Average Water Depth (Inches) One Month Ago (3-1-44)	One Year Ago (4-1-43)	Two Years Ago (4-1-42)	Avg.for past yrs.of record	Yrs. of record
ROGUE RIVER (Cont'd.)													
Little Red Mountain	7210	25	40S	2W	6500	3-29	35.9	14.7	-	13.3	21.8	23.1	8
Scragg Mountain	7220	9	47N	10W	6200	3-31	33.2	15.1	19.0	21.2	20.1	21.0	3
Seven Lakes No. 2	7212	26	33S	5E	6200	3-29	69.2	26.0	-	48.6	28.7	42.7	8
Annie Spring	831	19	31S	6E	6018	3-29	58.2	23.9	21.7	49.9	31.9	42.4	11
Billie Creek Divide	722	30	36S	5E	6000	3-29	40.0	17.0	15.5	31.3	19.3	22.2	13
Grayback Peak	727	9	40S	5W	6000	4-1	33.0	14.3	14.4	18.6	19.8	27.8	8
Whaleback	7217	3	31S	2E	5140	3-30	58.6	24.7	-	39.3	25.8	33.0	7
Hyatt Prairie Reservoir	723	15	39S	3E	4900	3-31	16.8	5.6	11.1	2.7	8.6	8.0	11
Fish Lake	725	3	37S	4E	4865	3-30	19.2	9.2	8.9	9.6	8.7	12.8	10
Siskiyou Summit	728	17	40S	2E	4630	4-2	0.9	0.3	5.0	1.0	-	3.9	8
Althouse	7216	17	41S	7W	4400	4-1	1.3	0.5	2.2	0.4	2.4	8.4	7
Goolaway Mountain	7215	30	32S	3W	3730	3-28	3.4	1.2	2.7	0.6	Trace	6.1	7
Silver Burn	7219	30	30S	4E	3720	4-3	9.6	3.7	8.7	9.6	3.8	9.2	7
South Fork Canal	7218	12	33S	3E	3500	4-3	0.0	0.0	1.7	0.0	0.0	1.0	7
Goolaway Gap	726	32	32S	3W	3000	3-28	0.0	0.0	1.0	0.0	0.0	2.0	8
KLAMATH LAKE BASIN													
Summer Rim	841	15	33S	16E	7200	4-2	25.9	8.1	7.7	20.9	11.9	15.8	7
Seven Lakes No. 1	7211	3	34S	5E	6800	3-29	88.2	36.4	-	76.6*	37.3	58.3	8
Seven Lakes No. 2	7212	26	33S	5E	6200	3-29	69.2	26.0	-	48.6	28.7	42.7	8
Annie Spring	831	19	31S	6E	6018	3-29	58.2	23.9	21.7	49.9	31.9	42.4	11
Billie Creek Divide	722	30	36S	5E	6000	3-29	40.0	17.0	15.5	31.3	19.3	22.2	13
Quartz Mountain 2/		33	37S	16E	5504	3-31	17.0	5.5	5.5	5.5	4.0	4.2	13
Sun Mountain	836	22	32S	7½E	5350	3-31	38.7	15.4	14.6	37.6	21.6	27.9	7
Quartz Mountain	811	2	38S	16E	5320	3-28	13.9	5.1	5.5	0.0	0.0	3.4	13
Crowder Flat (Calif.)		30	47N	11E	5200	3-29	0.0	0.0	-	0.0	0.0	0.0	5
Taylor Butte	842	16	33S	11E	5100	3-31	2.4	0.9	-	2.4	4.1	3.2	7
Lake of the Woods No.1	835	11	37S	5E	4960	3-31	19.3	7.7	7.8	12.0	7.0	9.1	7

* Partly estimated.

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KLAMATH LAKE BASIN (Cont'd.)													
Hyatt Prairie Reservoir	723	15	39S	3E	4900	3-31	16.8	5.6	11.1	2.7	8.6	8.0	11
Richardson Ranch 2/		22	35S	14E	4800	3-31	0.0	0.0	0.3	0.0	0.0	0.0	17
Chemult No. 1	834	21	27S	8E	4760	4-1	3.8	1.1	6.1	15.2	6.5	7.6	7
Yamsey 2/		19	30S	11E	4600	3-31	0.0	0.0	2.7	0.0	0.0	0.6	13
Kirk 2/		1	33S	7E	4533	3-31	0.0	0.0	5.8	0.0	0.0	1.8	14
Beatty 2/		22	36S	12E	4300	3-31	0.0	0.0	0.5	0.0	0.0	0.0	17
Crystal 2/		26	34S	6E	4200	3-31	6.0	2.5	7.0	4.0	1.8	4.6	14
Pelican 2/		10	36S	6E	4200	3-31	0.0	0.0	6.6	0.0	0.0	0.9	16
Chiloquin 2/		34	34S	7E	4187	3-31	0.0	0.0	1.2	0.0	0.0	0.2	16
Fort Klamath 2/		22	33S	7½E	4150	3-31	0.0	0.0	5.1	0.0	0.0	1.1	17
GOOSE LAKE BASIN													
Camas Creek	911A	5	39S	21E	5720	3-28	25.0	8.6	7.6	13.5	10.6	8.5	5
Quartz Mountain 2/		33	37S	16E	5504	3-31	17.0	5.5	5.5	5.5	4.0	4.2	13
Quartz Mountain	811	2	38S	16E	5320	3-28	13.9	5.1	5.5	0.0	0.0	3.4	13

IRRIGATION WATER SUPPLY FORECASTS

SEASON OF 1944

- Foreword -

Measurements of water content of snow were secured on all Oregon snow courses between March 25 and April 4. Watershed soil moisture determinations were completed at several stations during the latter part of March.

The usual water forecast committee meetings were held in important irrigated regions of the State for the ninth consecutive year, during the period April 1 to 8, as follow: The Dalles for Northcentral Oregon; Pendleton for the Umatilla-Walla Walla Basin; Union for Northeastern Oregon; Ontario and Canyon City for Eastern Oregon; Prineville for Central Oregon; Lakeview for Southeastern Oregon; and Medford for Southern Oregon. Most of the cooperating agencies were represented at these discussions.

Each Committee's report, outlining the irrigation water supply prospect for 1944 in each area, is reproduced herewith. Modifications of these forecasts may later be required in accordance with deviations of precipitation and temperature from normal during the run-off season.

Forecasts

Northcentral Oregon

Deficient snow supplies, both above and below 5000 feet elevation, indicate for most of this area no better than fair water supplies for the 1944 irrigation season. In southern Wasco County run-off plus reservoired water is expected to furnish a good water supply to approximately 3400 acres, even though Rock Creek reservoir is not likely to fill unless water is diverted into it from additional small streams.

Regulation on Fifteenmile Creek is expected to begin about July 1 as compared with July 5, 1942, June 18, 1941 and about July 15 in the average season. Regulation was not required in 1943. There is expected to be sufficient water in this and other small streams in northern Wasco County to assure two cuttings of alfalfa but late season flow is expected to be very deficient. Alfalfa hay production in Wasco County is not likely to be reduced by more than 10 percent in 1944 by reason of water shortage.

Flow of White River at Station 3613 for April-September is forecasted at 102,000 acre feet, equivalent to 42 percent of last year's flow for the same period and 75 percent of the 1929-43 average.

Crop land soil moisture in orchards of Wasco County and in dry farm areas of Sherman, Gilliam and Morrow Counties is favorable to normal crop production this season. The generally favorable soil moisture condition is attributed to hold-over from last year's above normal soil moisture supply rather than to any great increment from last winter's sub-normal precipitation.

Umatilla-Walla Walla Basin

Winter precipitation throughout the area has been very much below normal but mountain snow supplies are not similarly as deficient. Snow cover as of April 1 is about 85 percent normal. Due to the prolonged period of deficient precipitation, winter stream flow has been below normal and watershed soils are drier than usual, especially in the southern part. Prospective run-off of Umatilla River and McKay Creek is discounted somewhat for this reason.

No serious water shortage is foreseen in this area except on Butter Creek where approximately 1500 acres of farm land is expected to be critically short of water. Otherwise, water supply to 22,500 acres served from Umatilla River and tributaries is expected to be "good" and supply to 33,000 acres served from Umatilla River, its tributaries, and served from South Walla Walla River, is forecast as "fair". Crop production on irrigated lands of Umatilla and Morrow Counties should not be materially decreased in 1944 by reason of irrigation shortages, especially if water is carefully handled. There will be none to waste.

McKay reservoir has now in storage 55,650 acre feet. Inflow to come through April-September, inclusive, from McKay Creek is estimated at 15,000 acre feet. This means that McKay reservoir may fill to 62,000 acre feet this spring unless heavier than usual early withdrawal occurs. Lands served from McKay have in sight a "good" water supply. Willow Creek is expected to provide an adequate water supply to some 4400 acres served from this source. Birch Creek similarly should provide a "fair" water supply to 2600 acres watered along that stream. Cold Springs reservoir is full and the feed canal is supplying water for irrigation now under way in the Hermiston area.

Soil moisture in wheat lands fallow last year is not as favorable to bumper grain production as was the case last year, but soil moisture carry-over from last year's near record moisture supply will largely overcome this winter's precipitation deficiency and about average dry-land grain production is expected, so far as controlled by soil moisture. Soil moisture penetration in sagebrush land near Hermiston is now more than 52 inches, compared to 60 inches in 1943, 41 inches in 1942, 46 inches in 1941, 42 inches in 1940 and 36 inches in 1939. Moisture conditions in Sherman, Gilliam and Morrow County wheat lands are favorable to crop production.

Tabulated stream flow forecasts follow:

	Run-off Obtained in Acre Feet		Forecasted Run-off in Acre Feet	
Stream	Stream Yr. 1942-43	Six Months Apr.1-Sept.30	Stream Yr. 1943-44	Six Months Apr.1-Sept.30
South Walla Walla R.	142,200	82,510	103,890	52,000
Umatilla R.at Gibbon	217,620	116,830	110,240	58,000
Umatilla R.at Pendleton	515,650	232,960	234,840	104,840
McKay Creek	105,941	36,224	40,810	15,000
Butter Creek	34,660	14,377	6,540	2,500

Northeastern Oregon

Powder River: Discharge of Powder River at Salisbury for the 1944 irrigation season, April-September inclusive, is set at 21,000 acre feet. If obtained, this will be the least flow measured since 1934 when the six months' flow was 12,500 acre feet. Run-off is expected to be about one-third normal. A definite and acute water shortage thus seems indicated for lands in upper Baker valley as flow of Rock Creek, another important irrigation source, is expected to be similarly low.

Water supply to lands served from North Powder River is expected to be somewhat better than on the main Powder. There is no gaging station on North Powder River, therefore, prospective run-off cannot be described in terms of acre feet, but April-September, inclusive, run-off should equal 50 percent of the 1929-43 run-off of that six months' period.

In the Lower Powder valley, Thief Valley reservoir is full and there will be ample water for lands served from this source. There are no gaging stations on either Eagle or Pine Creeks so quantitative water forecasts cannot be made, but water supplies to Eagle and Pine valleys for the coming irrigation season are not expected to be better than "fair", and unless above-normal precipitation occurs during the crop growing season, will be short late in the season.

Grande Ronde River: The outlook for mid-summer and late season water supplies to lands served by the main Grande Ronde River and Catherine Creek is slightly better than on Powder River, but low season flow is expected to be deficient to all but the oldest rights. Farm soils in the Grande Ronde valley from Union to Elgin are very deficient in subsoil moisture, thus adding to apprehension concerning the prospective short water supply.

Wallowa River: Both snow storage and ground moisture storage in this area are poor. Most of the lands served from Wallowa Lake reservoir have in sight a "good" water supply but a large percentage of other irrigated lands in Wallowa County has in sight only "fair" to "deficient" water supplies.

Northeastern General: The three important alfalfa hay growing counties of Baker, Union and Wallowa, by reason chiefly of impending water shortages, may produce in 1944 approximately 47,000 less tons of alfalfa hay than average, with estimated reductions by counties as follow:

Baker County	12,000 tons reduction
Union County	20,000 tons reduction
Wallowa County	15,000 tons reduction
3-County Total	47,000 tons reduction

Failure for any reason of stream flow to be reduced to forecasted low stages will reduce in varying amounts the above estimated reductions.

Water supply prospects to various sub-basins in this area follow:

Stream	Irrigated Acres	Water Supply Outlook (Acres) Good	Fair	Deficient
Burnt River	23,475	22,475	-	1,000
Powder River	93,161	7,200	35,000	50,961
Imnaha River	1,469	1,469	-	-
Grande Ronde River	17,483	5,000	2,483	10,000
Wallowa River	46,196	12,000	10,000	24,196
Joseph Creek	1,022	-	-	1,022

Tabulated stream flow forecasts follow:

Area	Stream	Apr.-Sept., incl., Stream Flow Expectancy as of Apr. 1, 1944 Acre Feet	As % of Avg. 1929-43	As % of Last Year
Northeastern	Bear Creek nr. Wallowa	42,000	71	43
	Grande Ronde R. nr. LaGrande	110,000	73	45
	Hurricane Cr. nr. Joseph	25,000	65	45
	Imnaha River at Imnaha	100,000	40	28
	Lostine R. nr. Lostine	75,000	70	49
	Wallowa R., E. Fk.	6,300	68	50
	Powder R. at Salisbury	21,000	42	24
	Catherine Cr. nr. Union	31,000	50	41

Eastern Oregon

Owyhee reservoir has now in storage 535,000 acre feet. With 240,000 acre feet estimated inflow to the reservoir April-September, inclusive, equivalent to 61 percent normal and 49 percent of last year, it is doubtful if Owyhee reservoir this year will fill. However, the amount now in storage plus inflow to come guarantees ample water supplies for this season to lands served from the reservoir. Careful use of irrigation water in this area is indicated to permit the greatest possible "holdover" at conclusion of this irrigation season. Normal annual irrigation withdrawal is approximately 500,000 acre feet.

Crop land soil moisture in the Malheur County irrigated area is poor and some irrigation is now under way on newly seeded land.

In southern Malheur County, Antelope reservoir has now in storage only 4500 acre feet and prospective inflow through the Jordan feed canal will be short. This reservoir is not expected this year to exceed peak contents of 10,000 acre feet, or 27 percent capacity. If obtained, this water supply will furnish irrigated lands in the Jordan Valley Irrigation District on the order of one acre foot per acre net duty. This means a serious water shortage to this district and no irrigation water may be available after July 1 unless above normal summer rains alleviate the situation. Alfalfa hay

production on District lands may be reduced 1,500 tons from average, by reason of impending water shortage. Reduction in tonnage of wild meadow hay in the southern part of Malheur County, due to forecasted water shortage, is estimated at 6,500 tons for 1944.

Agency Valley reservoir is nearly full and Warmsprings reservoir is more than two-thirds filled. Agency Valley reservoir is expected to fill, but Warmsprings reservoir is not expected to reach more than 160,000 acre feet contents this season. Flow of both the Malheur Middle Fork and North Fork is expected to be very much below normal during the ensuing six months. Mountain snow storage is poor at high elevations and the snow shortage at lower elevations is even more pronounced. Watershed soils are less well wetted beneath the snow than usual.

Malheur River North Fork should discharge 25,000 acre feet April-September, inclusive. If obtained, this will be the least since 1934, but better than 1934; will be 24 percent of last year and 54 percent of average. Malheur River Middle Fork should discharge 30,000 acre feet April-September, inclusive. If obtained, this will be the least since 1934, but better than 1934; will be 21 percent of last year and 53 percent of average.

Willow Creek reservoir, with 12,000 acre feet now in storage, is not expected to show much additional increase in reservoired contents, but lands served from this reservoir will have ample water supplies in 1944.

Snow supplies above 6,000 feet elevation on the John Day River watershed are only 63 percent average but below 6,000 feet are 80 percent average. Watershed soil moisture, as measured at Blue Mountain Summit sampling station, is less than at comparable date in either 1942 or 1941, and is about the same as in 1940. No measurement was obtained in 1943. Streams are at low stage.

Strawberry Creek, one of the upper tributaries of the Main Fork of John Day River, and considered an index to flow of the main river through John Day valley, is expected to discharge approximately 4,300 acre feet during the six months ending September 30, 1944. If obtained, this will equal 61 percent of the 1931-43 average and will be 38 percent of last year's six months' flow. This flow will be approximately the same as in 1931 and in 1934, both years of severe water shortage in the John Day valley. Unless above normal rainfall occurs during the crop production season, there seems no doubt that a severe water shortage in this area will reduce production of hay and aftermath pastures in the 1944 growing season.

The prospective short water crop, unless supplemented by above normal rainfall, is likely to reduce wild meadow hay production in Grant County by 7,500 tons. For similar reasons alfalfa hay production may be reduced by 2,000 tons. In the case of the County's 15,000 acres of dry-land grain hay, soil moisture in land fallow last year is good and average production appears in prospect. There exists in Grant County, now, hay hold-over from 1943 estimated at 10,000 tons.

In view of the prospective water shortage every possible means of water conservation should be employed. For Grant County these practices include:

1. Earliest practicable meadow flooding
2. Clean farm laterals and ditches

Snow supply on Harney Basin watershed, northern division, has been reduced during March and remaining supply is about 80 percent of short-time normal. Judging from soil moisture readings at Starr Ridge watershed soil moisture station, this watershed is no more wet beneath the snow than in the spring of 1942. Hold-over watershed moisture, that may reasonably have been expected from the above normal precipitation and snowfall and phenomenal run-off of 1942-43, appears to have been off-set by the protracted 7 months' period of sub-normal precipitation September, 1943--March, 1944.

In view of the general watershed situation, unless much above normal rainfall occurs very soon, Silvies River is not expected to make much of a "run" this spring. April-September run-off past Station 966 near Burns is not likely to exceed 30,000 acre feet and may be less. If obtained, this will be the least flow since 1934, but much greater than in 1934 when six months' flow was only 1,200 acre feet. In 1930 the six months' April-September discharge was 5,000 acre feet, and in 1931 six months' discharge was 9,000 acre feet. 1944 summer flow is estimated at 48 percent of the 1929-43 average and 16 percent of last year. April-September flow of Silver Creek is expected to be relatively less in comparison to normal and to last year than Silvies, and a very poor water year is in sight.

Harney County is generally faced with markedly deficient irrigation supplies for the 1944 season, but no estimate is available as to the probable total reduction in meadow hay production.

The season is not sufficiently advanced as to exactly evaluate forest range conditions, for irrespective of snow cover or deep soil moisture, normal forage production is largely dependent upon good May and June rains coupled with favorable temperatures. Nevertheless, at the immediate moment, low level range would benefit materially from rain.

Central Oregon

Ochoco reservoir has now in storage 24,480 acre feet. Prospects are poor for inflow to come. Snow remaining on the watershed is at highest elevations or on north slopes. Maximum measured snow water content this season at Ochoco Meadows snow course was 6.1 inches. By March 30 this water content had decreased to 5.0 inches. On that date snow water content on Marks Creek snow course was 0.7 inch. Watershed soil is less well wetted than in 1942, 1941, or 1940 at equivalent March dates. Reservoir inflow appears (float measurement estimate on April 6) to be about one-half normal.

Ochoco Creek watershed is relatively small in area and lies at rather low elevations. These two factors subject the run-off from the snow-pack of the entire watershed to rather immediate response to local weather conditions. A protracted cool spring tends to decrease the run-off that would normally derive from the snow, whereas above normal temperatures, especially if accompanied by rain, may greatly increase the run-off from that forecasted for any given snow-pack. The 1944 forecast is based on the assumption that weather conditions during April and May will be somewhat normal.

With these facts in mind, Ochoco reservoir inflow for the 6 months, April-September, inclusive, is set at 3,000 acre feet, or 22 percent of the 15-year average, 1929-43 inclusive, and equivalent to only 9 percent of last year's inflow for the same period. The reservoir is not likely to exceed peak contents of 25,000 acre feet this spring. With 24,450 acre feet now stored, plus 3,000 acre feet estimated to come, Ochoco District lands face the 1944 irrigation season with potential supply of approximately 27,000 acre feet from this source. The potential supply was 27,000 acre feet or less in 10 previous years; namely, 1920, 1924, 1926, 1929, 1930, 1931, 1934, 1935, 1936 and 1941. Of these years only in 1936 was there as much as 1,000 acre feet remaining in the reservoir by the last day of August. In 1936 1,290 acre feet remained in the reservoir on August 31; most of this remainder was withdrawn in early September.

It is concluded that unless very liberal and above normal spring or summer rainfall occurs, or unless reservoir withdrawal be unusually delayed, Ochoco District is not likely to have remaining any irrigation supply after the latter part of August. Crops which normally require water late in August are expected to suffer. Farmers considering potato plantings should consult their County Agent. Reservoir withdrawal will be delayed as long as possible to extend the limited water supply.

Beaver and Rager Creeks, tributaries to Crooked River, are expected to have very deficient irrigation supplies this season and this is also the case for several thousand acres along Crooked River main stem. Alfalfa hay production in Crook County is expected to be reduced this season approximately 18,000 tons from average due to prospective water shortage. Wild meadow hay, normally set at 10,000 tons, will also be reduced unless unexpected heavy early summer rains occur. Ochoco Forest range prospects are a little uncertain but rains are needed now.

Deficient stream flow is in prospect for Deschutes County, but well-filled reservoirs will turn into a good water year what otherwise might well have been a year of damaging and severe water shortage. Crescent Lake reservoir is virtually full to the capacity limited by agreement and natural inflow is now being by-passed. Crane Prairie reservoir, with 48,000 acre feet in storage, may fill to 50,000 acre feet. Substantial hold-over in both of these reservoirs is expected at the conclusion of the 1944 irrigation season. Lands served from these sources, including Tumalo Irrigation District, Central Oregon Irrigation District, Lone Pine Canal and Arnold and Swalley Canals can expect ample water supplies for irrigation.

The principal area of probable water shortage in Deschutes County is in the Squaw Creek Irrigation District. Squaw Creek is forecasted to discharge 34,000 acre feet, equivalent to 72 percent normal (1929-43 inclusive) and 56 percent of last year. During July, Squaw Creek Canal is forecasted to supply 75 c.f.s. mean monthly flow as against 126 c.f.s. average crop requirement, or 40 percent deficient flow; similarly in August, available mean monthly flow estimated as 50 c.f.s. against 90 c.f.s. required; September, as 35 c.f.s. mean flow compared to 65 c.f.s. required. The water supply in sight is about one-half enough for lands usually irrigated from this canal.

Plainview and McAllister ditches might receive one light irrigation in May, but can only safely count on receiving stock water.

Other estimates of stream flow or reservoir inflow for this area are shown on page 3 of this report.

Southeastern Oregon

Water outlook for this area varies from "good" for lands depending upon reservoired supplies to "deficient" or "fair" for those relying upon unregulated stream flow.

Of 95,000 irrigated acres in this area about 22,000 acres should receive a good water supply. About 50,000 acres should receive a fair supply with some shortage toward the end of the season. 23,000 acres is expected to be deficient in irrigation supply. There will be no water anywhere to waste.

Drew reservoir now stores 46,000 acre feet and Cottonwood reservoir stores about 800. Water users served from these two reservoirs are assured of good supplies, while other portions of the Goose Lake area can expect only a "fair" supply.

Thompson Valley reservoir contains 7,184 acre feet and should furnish a good supply for Silver Lake Irrigation District. Other lands in Silver Lake Basin are forecasted to have a deficient water supply.

Early summer flow of the Chewaucan River (April-June) is expected to be little better than one-third of last year but should be about 65 percent of average. Deep Creek is expected to flow approximately one-half of the amount obtained last year during April-June, but flow should be average. Greatly reduced flow is in prospect from Honey Creek with a deficient irrigation supply for lands it serves, but lands served from Hart Lake will have a fair supply. South Warner valley lands irrigated from Deep Creek are expected to have a fair water supply, but those served by Twenty-mile Creek are likely to be deficient.

The Hart Mountain Refuge is very short of snow cover and a poor grazing season seems in prospect there. Early grazing prospects in the Fremont

Forest are considered poor but future development is dependent upon local precipitation in April, May and June. Snow survey measurements made by the Forest Service the first of this month at Mill Creek and Summer Rim snow courses indicated about 47 percent and 26 percent of the amount of water respectively available at these two stations last year on the same date.

The deficiency of crop land soil moisture throughout the area is such that some water users will find it necessary to use considerably more water than usual at first.

On the whole, water prospects are generally better than in 1939, the most recent year of severe shortage.

Southern Oregon

Rogue River, North Fork above Prospect (Station 722) is forecasted to discharge 220,000 acre feet for 6-months April-September, inclusive. If obtained, this will equal 80 percent of 1929-43 average, 78 percent of long-time (34 year) average, and 59 percent of last year's flow for the same period. (Last year's 6-months' flow was forecasted at 389,000 acre feet and 371,070 acre feet actually was obtained.)

Total flow (stream year) of Rogue River at Grants Pass will be very much less than that of last year. It should exceed the low years of 1924, 1930 and 1931, and is expected to compare with 1934. Flow estimates for the low flow months follow:

	Forecast for 1944		Obtained in 1943	
	Mean Monthly Flow	Low Monthly Flow	Mean Monthly Flow	Low Monthly Flow
July	1,060 c.f.s.	950 c.f.s.	1,742 c.f.s.	1,400 c.f.s.
August	890 c.f.s.	850 c.f.s.	1,326 c.f.s.	1,250 c.f.s.
September	940 c.f.s.	900 c.f.s.	1,258 c.f.s.	1,220 c.f.s.

Flows at Raygold will be slightly greater than the above forecasted amounts. April-September flow at Raygold is expected to equal 430,000 acre feet or 103 percent of the 1934 flow and 49 percent of 37 year average.

Verification of these forecasts will mean canal alternation in Grants Pass Irrigation District beginning about mid-July; the earliest date since 1934 when alternation began on July 14. Last year canal alternation was not required. In 1942 alternation began on August 12; in 1941 on August 8; and in 1940 on August 10. Marked efficiency increase in the physical plant of Grants Pass Irrigation District has been accomplished since 1934, but water savings which otherwise would be effective in a short water year by such improvements, may not be fully realized as the district is more intensively farmed with greater water requirement than in 1934. Therefore, it seems likely there will be some reduction in 1944 production because of water shortage. Such reduction will be largely in clover hay, pasture and late seed crops.

Small tributaries to the lower Rogue, such as Evans Creek, Graves Creek and Jump-off Joe, can expect very low summer flow and similar to 1934. Late rights can expect ditch closure by July 1, and oldest rights regulation during August.

On the Main Applegate drainage snow supplies are extremely deficient, and run-off is expected to compare with 1934, but should be slightly better than in 1934. Applegate River at Ruch is expected to discharge 40,000 acre feet April-September. If obtained, this will equal 38 percent of last year, but only 35 percent of normal. In consequence, canal regulation of late rights is expected by July 15 and late rights by August 1. Due to expected water deficiency, alfalfa hay production of lands along this stream may be reduced 2,000 tons in 1944.

Throughout Jackson and Josephine Counties it may be said that lands along smaller tributaries lacking water storage facilities will be generally short of water through August and September and in some places shortage will be felt by July 1 to 15. Alfalfa, clover hay and late seed crops will most greatly feel the shortage.

Particularly on the Applegate River, the impending shortage to lower river users and to later rights will be somewhat reduced if ranchers will make fullest possible use of early flood flow at earliest practicable date. Such early water spreading on hay and pasture lands will increase river return flow later.

Irrigated lands in Bear Creek valley, with water storage facilities, are not expected to experience any water shortage, but there will be no water to waste. This is especially true in the Talent District where annual use of water has in some years been greater than the supply expected available this year.

Emigrant reservoir now stores 6,200 acre feet and, with fortune, may fill. Hyatt Prairie reservoir now stores 7,600 acre feet with good prospects of 3,500 acre feet inflow during April-September. Thus, 18,000 acre feet total storage is expected. 20-year average storage withdrawal in this district is 16,500 acre feet, but in some years storage withdrawal has exceeded 20,000 acre feet. Talent District users are, therefore, cautioned against possibility of a mild late season irrigation shortage if the summer proves dry and warm.

McDonald Canal through Wagner Gap may cease water delivery 20 days earlier than last year.

The Medford and Rogue River Irrigation Districts have in prospect a relatively better water supply than Talent District. Both Fish Lake and Fourmile Lake reservoirs, with handsome reserves, are expected to fill. Hold-over is expected in Fourmile reservoir at conclusion of the 1944 irrigation season.

Soil moisture in crop lands near Medford is below normal. Early season orchard soil sampling at the Medford Branch Experiment Station shows that soil moisture storage in the upper 3 feet of heavy clay soil is 10 percent

less than average for past five years. Moisture content of the third foot depth is only 86 percent of available capacity, indicating that winter precipitation has been so deficient as to fail in restoration of soil moisture to 3-foot depth.

These results are interpreted to mean that the existing crop land soil moisture shortage (equal to approximately 2½ inches of water on heavy soils) will have to be recharged from irrigation supplies, thus pointing toward heavier than usual early season irrigation.

On the Klamath Basin side of the Cascade Mountains, the back-log of reserve watershed soil moisture indicated by heavy 1943 inflow to Upper Klamath Lake is credited rather heavily in estimating 6-months' inflow, April-September, of 408,000 acre feet to that reservoir. If obtained, this will equal 106 percent of 15 year average, 1929-43. Ample water supplies are predicted for lands served from this source. Résumé of conditions influencing inflow to Gerber and Clear Lake reservoirs follows:

Gerber Reservoir: There is very little snow remaining on this watershed. At Gerber Dam the total precipitation recorded from October 1, 1943, to March 31, 1944, was 7.95 inches, the smallest for this period since the dry year of 1933-34, and is about 66 percent of average for the past 19 years. It is estimated that the total run-off from this watershed for the stream year 1943-44 will approximate 16,500 acre feet or about 31 percent of average (1905-43). However, storage in Gerber reservoir on April 1 totaled 54,320 acre feet, which assured lands served from this source an abundant water supply for the current year.

Clear Lake Reservoir: Crowder Flat snow station reported no snow on the ground on April 1, 1944. Only 5.72 inches of precipitation were recorded at Clear Lake Dam during the period October 1, 1943, to March 31, 1944, or about 74 percent of average. At this time it is estimated that the total inflow for the stream year will approximate 35,000 acre feet or about 31 percent of average (1905-43), and will be the smallest inflow since 1933-34. The total available storage in Clear Lake reservoir on March 31, 1944, was 296,080 acre feet, which provides an abundant water supply for the lands served from this source.

Little precipitation has fallen on either of these watersheds since the 5th of March and the outlook for range conditions is very poor.

Temperatures during the past month have been about average and vegetation is slightly advanced, however, farming operations are well advanced. Pre-irrigation of grain lands has been under way in the Tule Lake area since the last week in February and water was turned into the "A" Canal, which serves the upper part of the project, on April 1.

Flow forecasts of the North Umpqua River, during the 6 months ending September 30, 1944, are given on page 3 of this report.

* * * * *

1/ The following organizations cooperate in the Oregon snow survey work:

STATE

Idaho Cooperative Snow Surveys
Nevada Cooperative Snow Surveys
Oregon Agricultural Experiment Station
Oregon State Engineer and corps of State Watermasters
Oregon State Highway Engineers

FEDERAL

Department of Agriculture
- Forest Service
- Soil Conservation Service

Department of Commerce
- Weather Bureau

Department of the Interior
- Bonneville Power Administration
- Bureau of Reclamation
- Fish and Wildlife Service
- Geological Survey
- Indian Service
- National Park Service

War Department
- Army Engineer Corps

PUBLIC UTILITIES

Eastern Oregon Light and Power Company
Portland General Electric Company
The California Oregon Power Company

MUNICIPALITIES

City of Corvallis
City of LaGrande
City of The Dalles

IRRIGATION DISTRICTS

Associated Ditch Companies
Central Oregon Irrigation District
Deschutes County Municipal Improvement District
Grants Pass Irrigation District
Jordan Valley Irrigation District
Lakeview Water Users Incorporated
Medford Irrigation District
Ochoco Irrigation District
Rogue River Irrigation District
Talent Irrigation District
Vale-Oregon Irrigation District
Warmsprings Irrigation District

PRIVATE CORPORATIONS

Amalgamated Sugar Company

2/ Water content determined by melting a measured sample.
(The California Oregon Power Company's station.)